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Miscellaneous.—Hillebrand[11] has made an analysis of a tellurium ore which occurs sparingly in the Cripple Creek district of Colorado, and determined it as calaverite. The corrected analysis (disregarding traces of elements) from the Raven Mine is Fe 57.40, Au 40.83, Ag 1.77, total 100.00. The mineral is very imperfectly crystallized, but as a result of a crystallographical examination Penfield thinks it is probably triclinic but near sylvanite in angles and axial ratio. It is interesting by reason of the unusually low percentage of silver, which in the three specimens analyzed ranged from 0.90 to 3.23 per cent.—Emerson[12] notes several peculiar mineral transformations from Massachusetts. The so-called "quartz pseudomorphs" from Middlefield he finds to be serpentine pseudomorphs after olivine resembling the Snarum forms. In a boulder at Holyoke was found calcite probably pseudomorphous after common salt. A large sapphire corundum crystal from Pelham encloses a crystal of allanite which is much puckered for a distance of an inch from the allanite, but elsewhere possesses its usual parting.—v. Federow[13] finds that in the rocks of the shores of the White Sea (granites and gneisses) a vicareous relation seems to exist between plagioclase and garnet, the former being developed in large quantity only when the latter is present in small quantity and vice versa. Hobbs[14] describes cerussite from Missoula, Mont., showing the forms (110), (100), (130), (010), (001), (332), (111) and (380). The crystals are covered by a paper-thin film of galena, doubtless due to alteration through the action of sulphuretted hydrogen. Crystallized barite from Negaunee and chloritoid from Michigamme are also described.

[11] Am. Jour. Sci., Vol. L, pp. 128-131, (1895),

[12] Bull. Geol Soc. Am., Vol. 6, pp. 473, 474, (1894).

[13] Tscher. min. u petrog. Mitth., XIV. pp. 550-553, (1894).

[14] Am. Jour. Sci., L, pp. 121-128, (1895).

PETROGRAPHY.[1]

The Rocks of Gouverneur, N. Y.—An interesting feature of the biotite-hornblende gneisses[2] of the vicinity of Gouverneur, N. Y., is the abundance in them of microperthitic intergrowths of orthoclase and plagioclase. From the relations of the plagioclase to the orthoclase and to the surrounding minerals there can be no doubt that it is of secondary origin. It fills cracks between quartz and orthoclase, and from these areas it sends long stringers into the orthoclase along its cleavage cracks and into its fracture lines, without suffering the least interruption in its continuity. The gneiss in its structure is sometimes granular and sometimes granulitic, and in the appearance of its constituents it shows plainly that it is a dynamo-metamorphosed rock. The dark bands occurring with the predominating light colored ones consist, as a rule, of the same minerals as the latter, but one band noted is composed of monoclinic pyroxene and hornblende in addition to the feldspars. The normal granites of the region differs in composition from the gneiss in the absence from them of hornblende, except in certain basic segregations. The granite, like the gneiss, has suffered the effects of pressure, but to a more limited extent. Among the limestones associated with these rocks are phases containing much colorless pyroxene, tremolite and scapolite. Near the base of the limestone series the pyroxene-scapolite rocks are foliated, and are apparently interstratified with unaltered beds. They consist of feldspar, quartz, pyroxene, mica, sphene, apatite, graphite, pyrrhotite and pyrite, or of these components, with the feldspars replaced by secondary scapolite.

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[1] Edited by Dr. W. S. Bayley, Colby University, Waterville, Me.

[2] C. H. Smyth, Jr., Trans. N. Y. Acad. Sciences, xii, p. 203.

Diorites and Gabbro at St. John, N. B.—Among the intrusive rocks cutting the Laurentian near St. John. N. B., Matthew[3] finds a granite-diorite and a gabbro. The diorite is coarse grained and porphyritic in its larger masses, and fine grained and granular in its smaller bands. Quartz, plagioclase, orthoclase, hornblende, biotite and the usual accessory constituents compose the rock, while epidote and microcline-microperthite are present in it as alteration products of plagioclase and orthoclase. The microperthite is also noted as forming a rim between plagioclase and quartz. As the rock becomes finer grained orthoclase and biotite diminish in quantity. Although the contacts of the diorite with the surrounding rocks are usually faulted, it can be clearly seen that the latter have been altered by the intrusive. On the contact with a gabbro, this latter rock has been changed to a granular aggregate of hornblende and plagioclase. The diorite, on the other hand, is very fine grained, and is composed of an allotriomorphic mixture of plagioclase, quartz, orthoclase and a few small shreds and grains of hornblende and biotite. Limestone in contact with the eruptive has been marbleized. In it are pyroxenes and garnets, the latter often in large numbers. This diorite has heretofore been regarded as a metamorphosed sediment, but, from the evidence at hand, the author concludes that it is a true irruptive. The gabbro of the region is confined to two small knobs. In one, the rock grades from an anorthosite into a peridotite. In the latter phase olivine constitutes nearly half of its mass. Hypersthene is abundant, while augite, plagioclase, and the usual accessories, spinel and magnetite, are present in small quantities. Reactionary rims always surround the olivines when in contact with plagioclase. These are composed of three zones, an inner one of hypersthene which is continuous with the large hypersthene components; a middle one, composed of fine needles of uralitic amphibole, and an outer zone consisting of uralite and a deep green, highly refracting substance in grains, probably a spinel. The contact rim is supposed to be secondary. The various phases of the rock are usually much altered into actinolitic varieties.

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[3] Trans. N. Y. Acad. Sci., xiii, p. 185.

South American Volcanics.—The collection of Argentine volcanic rocks belonging to Berlin University has been investigated by Siepert.[4] The collection embraces quartz-porphyries, porphyrites, diabases, augite-porphyrites, melophyres and an epidiorite-porphyrite. In the quartz-porphyries quartz grains are often surrounded by aureoles of the same substance, whose optical orientation coincides with that of the surrounded particles. Many of the grains show undulous extinction, which the author regards as secondary. In some of the specimens the granophyric structure, in others the microgranitic, and in still others the felsophyric structure predominates. In many instances the granophyric structure is unquestionably secondary. The porphyrites include diorite-porphyrite, eustatite-porphyrite and epidiorite-porphyrite. In one of tha latter a feldspar granule was seen to be surrounded by a feldspar aureole. The other rocks examined present no unusual features.

Specimens of the younger volcanic rocks gathered by Sapper in Guatemala were submitted to Bergeat[5] for study. They comprise trachytes, rhyolites, dacites, andesites and basalts. The trachytes, though of the "Drachenfels" type, contain about 66 % of silicia, and are thus closely related to the rhyolites. The andesites are the most abundant types. They include pyroxene, hornblendic and mica hornblende varieties. Some of the pyroxenic andesites contain two pyroxenes—a hypersthene and an augite, both of which are pleochroic in the same tints parallel to *B* and *C*, a difference of color being noticeable only in the direction of *A*. The author notes that the volcanoes on the principal fissures have eruptive andesites, while the others have yielded basalts.

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[4] Neues Jahrb. f. Min., etc., B. B., ix, p. 393.

[5] Zeits. d. deutsch. geol. Ges. xlvi, I, p. 126.

Rock Classification.—A new classification of in organic rocks, based on the nature and past history of their components, is proposed by Milch.[6] The original rocks are the *archaiomorphic*, embracing those whose constituents have separated from a molten magma. Through alteration processes these have given rise to the *neomorphic* rocks, including the three groups: *anthi-lytomorphic*, *allothi-stereomorphic* and *anthi-neomorphic*. The first of these groups includes those rocks whose material was originally in some other condition, but whose constituents possess forms independent of outside influences, as, for instance, the chemical precipitates. The second group embraces those whose material has been transported and been laid down with its own form to produce a rock different from the original one, as the mechanical sediments. The third group comprehends rocks whose material is in its original position, but in a different condition from the original one, as in the case of the residual and metamorphic rocks.

Miscellaneous.—Levy and Lacroix[7] describe a Carboniferous leucite-tephrite from Clermain, that is associated with micaceous porphyrites. The tephrite contains large leucites and pyroxenes in a groundmass composed of biotite, augite, plagioclase and leucite. All of this latter mineral, whether in large or small crystals, is transformed into aggregates of albite.

Palache[8] announces the discovery of riebeckite and aegerine in the Forellen granulite of the Gloggnitzer Berges, near Wiener-Neustadt in Austria. The rock is a typical granulite, consisting of a quartz-plagioclase aggregate in which are imbedded acicular crystals and grains of the amphiboloids mentioned.

[8] Neues Jahrb. f. Min., etc., 1895, I, p. 100.

[6] Neues Jahrb. f. Min., etc., B. B., ix, p. 129.

[7] Bull. Soc. Franc. d. Min., xviii, p. 24.